Webstrategy Formulation: Benefiting from Web 2.0 Concepts to Deliver Business Values

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Abstract. With the accelerating growth of internet users, a rise of globalization, distributed work environments, knowledge-based economies, and collaborative business models, it becomes clear that there is currently a high and growing number of organizations that demand a proper webstrategy. The emergence of web 2.0 technologies has led many internet companies, such as Google, Amazon, Wikipedia, and Facebook, to successfully adjust their webstrategy by adopting web 2.0 concepts to sustain their competitive advantage and reach their objectives. This has raised an interest for more traditional organizations to benefit from web 2.0 concepts in order to enhance their competitive advantage. This article discusses the effective webstrategy formulation based on the web 2.0 concepts in [21] and the differing requirements, characteristics, and objectives in different types of organizations. This research categorizes organizations into Customer Intimacy, Operational Excellence, and Product Leadership, according to the Value Disciplines model in [26].

Keywords: web 2.0, webstrategy, framework, collaboration, globalization, business model, value disciplines.

1 Introduction

The growth of internet usage has been increasing tremendously in the past years. Illustratively, Internet World Stats [14] reports that there are approximately 1.25 billion internet users in the world. This is one of the triggers of the emergence of internet businesses nowadays. Most of the successful internet companies tend to develop and nurture a web community. The increasing importance of business communities confirms that there is a shift in business models from a traditional hierarchical system and competition into more collaboration and social networking, which are considered to be two of the most important web 2.0 concepts [2], [6], [7], [25].

Web 2.0 is defined as "the philosophy of mutually maximizing collective intelligence and added values for each participant by formalized and dynamic information sharing and creation" [13]. An interesting and currently much highlighted prospect for web 2.0 is to aid organizations to enhance their businesses by sustaining their competitive advantage [11]. Web 2.0 has been successfully adopted by many of the

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successful internet companies, such as YouTube, Amazon, Wikipedia, and Facebook. They are able to maintain and raise their big web communities by applying web 2.0 concepts in their webstrategy [21]. Therefore, the following research question arises: "*how can more traditional organizations benefit from web 2.0 concepts?*". This article investigates this research question regarding the formulation of webstrategy benefiting from web 2.0 on any type of organization.

2 Organizational Developments

Organizations nowadays have to adapt to and deal with fast-paced changes in order to effectively continue pursuing their business objectives. Today's dynamic environment pressures organizations to adapt to these changes by reconsidering its structures, processes, and relationships with its clients, competitors, and partners [10]. Notable changes that have been identified up until now, which are intensely connected to web 2.0 concepts, include the followings:

- Globalization is continuously rising. More and more, organizations need to be able to operate in an increasingly complex environment [7], [8], [25]
- The movement towards a distributed work environment is greater than ever before [5], [16]
- There is a shift towards a knowledge-based economy in which knowledge and information are the primary sources of value creation [15], [19]

Organizations are now able to provide their products and services to one global market. In order to outperform their competitors, organizations should think globally and work collaboratively with their chain partners [25]. This means that the environment and the work for organizations are becoming more complex and require greater coordination and interaction [10]. Advanced technologies enable individuals and organizations to be mobile and to work together while being spatially and temporally decoupled from one another. This mobility development influences not only organizations but also the entire society [16]. As a result, the changes in the organization's requirements to maintain a high level of communication are inevitable [19]. Web 2.0 concepts, as one of the IT resources, can be employed to help enable such an organizational environment [3].

Next to that, knowledge is considered as an increasingly important source of wealth creation and competitive advantage for organizations [7], [9], [25]. Information is digitized and the revolution of communication technologies has led to many developments where knowledge is captured, organized, stored, shared and evaluated [24]. These facts have tickled our curiosity on how web 2.0 concepts can serve organizations in this knowledge economy and globalization era, in which organizations require to accommodate the increasing needs of collaborative efforts.

3 Collaborative Business Model

Chesbrough [7] defines business model as a useful framework to link and convert ideas and technologies into economic values. Alongside other things, a business

model performs two important functions: *value creation* and *value capture* [7]. In order to thrive in this twenty-first century with its globalization and knowledge-based economy, the business models of organizations are required to be adapted and improved [7].

The most recent business model improvement in today's business environment is to involve key suppliers and customers in the value creation and value capturing activities as the business partners of the organization, entering into a relationship where both technical and business risks are shared [1], [7]. This type of collaboration aims at harnessing collective intelligence through peer-production, in a more effective and efficient way than ever before [25]. This concept is starting to displace the traditional corporation hierarchies as the main system of wealth creation in the economy. This has led to the facts that many of the resources for effective information production and communication are now owned by and available to much bigger communities [2], [25]. The individual freedom to cooperate with the others in creating economic value is no longer limited to certain geographical area and timeframe. Communication and collaboration patterns, as well as information consumption and production are reshaped [13], [17].

Furthermore, the collaborative business model is characterized by the following [2]:

- Nonproprietary information is becoming more common and important in the information production.
- The use of continuously expanding computer network that connects billions of people, which provides a platform where the aggregate effect of individual action produces the coordinate effect of a new and rich information environment.
- The rise of the effective and large scale cooperative peer-production of information, knowledge and culture.

4 Webstrategy Framework

This research aims to assist organizations to formulate an effective webstrategy for their businesses. But how do we define a webstrategy? In order to define the term 'webstrategy', we may want to know how strategy is described. Wikipedia [28] defines strategy as "*a long term plan of action designed to achieve a particular goal, most often "winning"*". Moreover, James Brian Quinn in *The Strategy Process: Concepts and Contexts* indicates strategy as "*the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole*". From these strategy definitions, we define webstrategy within the context of this research as "*The plan of action, involving important elements, revolving around a web environment with regard to web 2.0 concepts, designed and implemented in order to achieve organization's business goals*". The important elements include: goal, clients, products, time, resources, and tools/channels [12], [20], [22].

We believe that the different types of organizations with differing requirements, characteristics, and objectives require a different webstrategy. Therefore, an effective webstrategy formulation is necessary to be performed. In this research, the *Value*

Disciplines introduced by Treacy and Wiersema [26] is used as an organization typology. Value Disciplines categorizes organizations into three types: Customer Intimacy, Operational Excellence, and Product Leadership.

The differing requirements of different organization types have led us to think about how a webstrategy would be best formulated for the specific organization's situation. In order to perform an effective webstrategy formulation and web 2.0 adoption, we have developed a webstrategy framework. The purpose of the webstrategy framework is to assess the current (as-is) webstrategy of an organization, give the direction of the desired (to-be) webstrategy of the organization, and finally provide advices regarding possible improvements and propose a new effective webstrategy. These phases are executed according to the organization's situation and maturity revolving around the important elements of webstrategy.

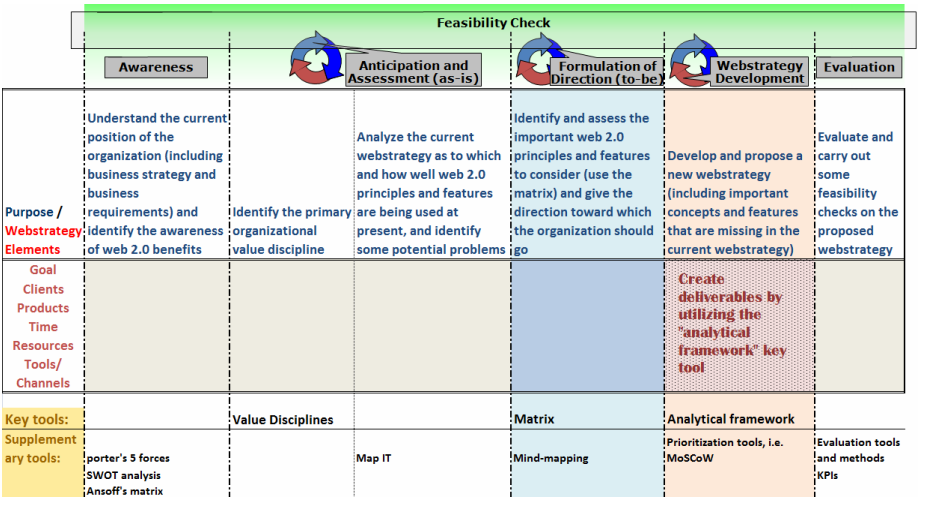

Fig. 1. A fragment of the webstrategy framework

The webstrategy framework depicted in figure 1 incorporates five phases, one additional activity, six webstrategy elements, key tools, and optional supplementary tools. These phases function to guide through the whole webstrategy formulation in search for a good solution. These should include internal and external aspects [20], [22]. The webstrategy formulation phases are:

- *Awareness:* In this phase, information the organization should be gathered. This includes its business strategy, business requirements, maturity compared to its competitors, the industry trends, and their awareness of web 2.0 benefits.
- *Anticipation and Assessment (as-is):* Value discipline is identified, and the current webstrategy and as-is situation of the organization are assessed, as to which and how well web 2.0 concepts and features are being used at present. The potential problems should also be identified.

- *Formulation of Direction (to-be):* Based on the organization type, the desired situation is formulated toward which the organization should improve their webstrategy. This direction is provided by the "Matrix" (see section 4.1), one of the key tools supporting the utilization of this webstrategy framework.
- *Webstrategy Development:* In this phase, the new webstrategy is formulated. The "Analytical Framework" key tool was developed to aid this phase. The design of the analytical framework is further elaborated in section 4.2.
- *Evaluation:* Whether or not the proposed webstrategy is aligned with the business strategy, delivers what it was intended to, is able to achieve organization's objectives and is accepted by the users are evaluated.

In the webstrategy framework shown in figure 1, we can see the one additional activity that is performed throughout the whole webstrategy formulation process:

- *Feasibility Check:* Feasibility check is performed continuously throughout the whole process in order to identify potential problems at early stage, thus, save time from analyzing and formulating ineffective or inefficient webstrategy.

The *supplementary tools* are optional and can be used to support information gathering and the completion of particular phases. Examples of supplementary tools include Porter's five forces, SWOT analysis, Ansoff's matrix, MapIT, Mind-mapping, MoSCoW prioritization tool, and Key Performance Indicators (KPIs). Unlike the supplementary tools, the *key tools* are strictly attached to and must be used along with the webstrategy framework.

4.1 Key Tool: The Matrix

Web 2.0 is not a single philosophy or technology, rather many that should be considered [18]. Hoegg et al. [13] present the fundament of web 2.0 as collective intelligence maximization, transparency of the information creation and sharing process, and network effects. Breslin et al. [4] denote web 2.0 as social networking communities. However, these terms are leaning toward the seven higher level key concepts that are enunciated by O'Reilly [21]: *the web as platform* (1), *harnessing collective intelligence* (2), *data is the next intel inside* (3), *end of the software release cycle* (4), *lightweight programming models* (5), *software above the level of a single device* (6), *and rich user experiences* (7).

This matrix is one of the key tools involved in the webstrategy framework, which will be used in the Formulation of Direction phase. The purpose of this matrix is to give the meaningful and accountable direction of which web 2.0 concepts an organization should focus on. This direction consists of the different significance and effectiveness of each web 2.0 key concept for an organization to sustain or even enhance its competitive advantage, depending on its type.

4.1.1 Methodology

The matrix was developed with the characteristics of each organization type on one dimension [12], [27], and the seven web 2.0 key concepts on another dimension [21].

In order to fill in this matrix, 12 expert interviews have been conducted with web 2.0 experts. Even though the 12 experts have various experience, specialization and

Table 1. Matrix composition

Organization Types and its Characteristics	Web 2.0 Key Concepts						
	1	2	3	4	5	6	7
Customer Intimacy							
- *Build bonds with customers*	c1						
- *Understand customers*	c2						
- *Tailor its products and services*	c3						
- *Customer loyalty is the greatest asset*	c4						
Operational Excellence							
- *Improve operational quality*							
- *Improve efficiency*							
- *Ease of purchase*							
- *Low prices*							
- *Hassle-free services*							
Product Leadership							
- *Keep innovating*							
- *Creation of new knowledge*							
- *Require highly creative environment and culture*							
- *Ability to bring/commercialize new ideas to market quickly*							
- *Have state-of-the-art products or services*							

industry focus, all of them have strong interest and good understanding, knowledge, and experience on web 2.0 projects.

The duration of each expert interview was ranging between 90 and 120 minutes. During the interview, additional information was provided to ensure that the concepts being discussed were exactly and correctly understood by both the experts and the researcher. During this session, the experts were required to complete this matrix by giving a score for each concept toward every characteristic of each organization type. The relationship between the concept and the characteristic is '*how important is this concept for helping the particular organization type to support the corresponding characteristic?*'. The score ranges between 1 – 5, where 1 indicates 'least important' and 5 is interpreted as 'extremely important'.

The analysis was performed in two ways by investigating the *averages* and the *frequencies*. The analysis on average values was performed by taking into consideration the standard deviations and potential outliers. The steps taken are:

1. The sum scores of the characteristics of each organization type per concept are calculated for every respondent. Since the number of characteristics, and thus the sum of maximum scores, of the customer intimacy organization is not the same as the other two types, therefore, the calculation is done in percentage in order to make comparable measurements among the 3 organization types, i.e. $(c1+c2+c3+c4)/(c1_{max}+c2_{max}+c3_{max}+c4_{max}) * 100$.
2. From the previous calculations, the average scores of the sum, of the 12 respondents, on each concept per organization type are calculated to draw the final result. The higher the average score, the more important the concept is.

The second analysis is focusing on the frequency. The steps taken are:

1. The average scores of the characteristics of each organization type per concept are calculated for every respondent.
2. The average scores are categorized into 1-2, 2-3, 3-4, and 4-5, and certain points are assigned to each category. The points assigned to the categories are 1 point, 2 points, 3 points, and 4 points respectively.
3. The frequencies of the average scores in all categories are analyzed by calculating the points that each concept obtained on each organization type. The higher the point, the more important the concept is.

4.1.2 Results

Figure 2 presents an overview of the importance of each web 2.0 concept to different types of organizations. It shows that according to the experts, "harnessing collective intelligence" (2) is a very important concept for the success of customer intimacy and product leadership organizations. Next to this, "end of the software release cycle" (4) and "lightweight programming models" (5) concepts appear to be valued the most by product leadership organizations compared to the other types of organizations. Expectedly, "software above the level of a single device" (6) and "rich user experiences" (7) are shown to deliver most values for customer intimacy organizations. Moreover, the "the web as platform" (1) concept scores slightly higher on operational excellence organizations, while the "data is the next intel inside" (3) concept scores higher on customer intimacy. The same interpretation can also be seen in the result of the frequency analysis in table 2.

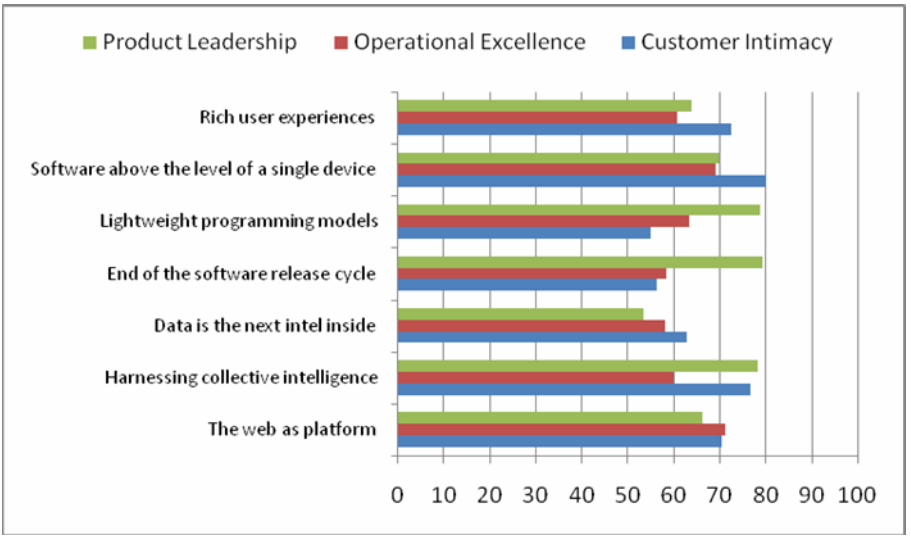

Fig. 2. The result of the average analysis

Table 2. The result of the frequency analysis

Organization Types (Average Score Categorization)	Web 2.0 Key Concepts (Frequency)						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Customer Intimacy							
1-2 (x1 point)	1	0	1	0	3	0	0
2-3 (x2 points)	1	1	3	9	2	0	1
3-4 (x3 points)	6	3	5	2	5	6	6
4-5 (x4 points)	4	8	3	1	2	6	5
Total Points	**37**	**43***	**34**	**28**	**30**	**42***	**40**
Operational Excellence							
1-2 (x1 point)	0	1	0	0	0	0	1
2-3 (x2 points)	2	3	6	7	3	3	5
3-4 (x3 points)	5	6	4	3	8	4	4
4-5 (x4 points)	5	2	2	2	1	5	2
Total Points	**39***	**33**	**32**	**31**	**34**	**38***	**31**
Product Leadership							
1-2 (x1 point)	0	0	2	0	0	0	1
2-3 (x2 points)	1	1	4	0	0	2	5
3-4 (x3 points)	10	5	5	6	4	8	4
4-5 (x4 points)	1	6	1	6	8	2	2
Total Points	**36**	**41***	**29**	**42***	**44***	**36**	**31**

* The most important web 2.0 concept for corresponding organization type.

The results of both the average and the frequency analyses are complementing to each other, thus a reliable conclusion was drawn as illustrated in table 3.

Table 3. The mapping of the 7 web 2.0 concepts toward organization types based on their importance level in delivering business values

Organization Type	*Very Important*	*Important*	*Less Important*
Customer Intimacy	- Software above the level of a single device (6) - Harnessing collective intelligence (2)	- Rich user experiences (7) - The web as platform (1) - Data is the next intel inside (3)	- End of the software release cycle (4) - Lightweight programming models (5)
Operational Excellence	- The web as platform (1) - Software above the level of a single device (6)	- Lightweight programming models (5) - Rich user experiences (7) - Harnessing collective intelligence (2) - End of the software release cycle (4) - Data is the next intel inside (3)	
Product Leadership	- End of the software release cycle (4) - Lightweight programming models (5) - Harnessing collective intelligence (2)	- Software above the level of a single device (6) - The web as platform (1) - Rich user experiences (7)	- Data is the next intel inside (3)

4.2 Key Tool: The Analytical Framework

The analytical framework is developed to investigate the information gathered from the previous phases of the webstrategy framework, and to be used in the "*webstrategy development*" phase. This systematic tool gives the guideline on how the new webstrategy should be formulated and proposed, based on the internal and external aspects of the organization.

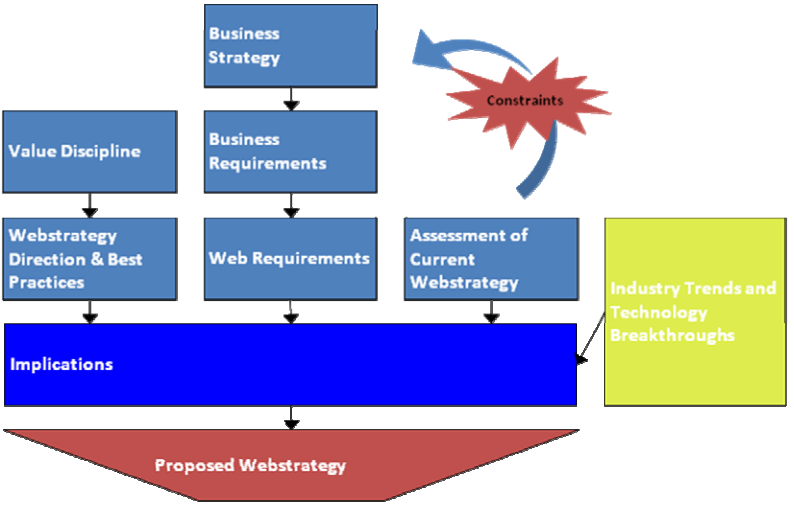

Fig. 3. The analytical framework

Some deliverables are expected to be created by utilizing this analytical framework. These deliverables are essential in formulating an effective webstrategy:

- *Business Strategy*: is identified by analyzing the information gathered in the first phase of the webstrategy framework, namely "*awareness*". This is the long term business plans of the organization to achieve its long term goals.
- *Business Requirements*: are derived from the business strategy, constitute a specification of what the business wants and describe in business terms what must be delivered or accomplished to provide value.
- *Web Requirements*: are translated from the business requirements, and contain the necessities of web-related technologies capabilities in order to support the business and achieve its objectives.
- *Value Discipline*: describes the type of the organization, and is identified in the "*anticipation and assessment (as-is)*" phase of the webstrategy framework.
- *Webstrategy Direction & Best Practices*: describe which web 2.0 concepts are essential in delivering business value to the organization. This deliverable refers to the "*formulation of direction (to-be)*" phase of the framework.

- *Assessment of Current Webstrategy*: is produced from the information gathered in the "*anticipation and assessment (as-is)*" phase. This includes not only the assessment of the current webstrategy, but also the impact on the business strategy. Any *constraints* from the current webstrategy that limit or do not support the effectiveness of the organization's business strategy are listed.
- *Industry Trends and Technology Breakthroughs*: concern more of external forces that are able to deliver business values to and influence the organization.
- *Implications*: involve internal as well as external influences, and must give clear ideas on which the formulation of the webstrategy will be based.
- *Proposed Webstrategy*: should be aligned with the organization's business strategy, capabilities, and goals [23]. Thus, the proposed webstrategy is expected to effectively address the issues that the organization has, deliver the business values to the organization, and improve its business performance.

5 Conclusions

In this twenty-first century, where the knowledge-based economy has emerged, information and communication technologies are crucial to the success of the organizations. Taking IT into an organization requires a good alignment between the capabilities of different business aspects and IT. Business models have also started to shift toward collaboration and community involvement. Organizations create pores to allow information and knowledge to flow in and out of the organization, which would stimulate creation of knowledge and innovation. This approach effectively gains through web 2.0 technologies and their underlying concepts, which suggests that collective intelligence, even from individuals, matters.

For an organization to successfully adopt web 2.0 concepts into its webstrategy, there are a number of aspects which need to be considered, including the value discipline which best describes its organization type and the unique value that is to be delivered in the long term. The webstrategy of the organization requires to be able to sustain and even improve this unique value to the next level in order to outperform its competitors. Therefore, the categorization of web 2.0 concepts based on their effectiveness in addressing the issues and delivering business values to specific organization type was emphasized.

Next to the value discipline, webstrategy formulation involves other aspects as described in section 4. An effective webstrategy should consider its alignment with the organization's business strategy, objectives, resources and capabilities, as well as with the industry trends and technology breakthroughs. This research has sought to consider these elements and the alignment in formulating an effective webstrategy with the adoption of web 2.0 concepts for different types of organizations. The webstrategy framework and its key tools were introduced and the explanations of the fragments were provided. The differing needs of web 2.0 solutions for different organization types were also presented. The webstrategy framework as described in this article will assist in formulating an effective webstrategy by incorporating the appropriate web 2.0 concepts to effectively deliver business values for the organization.

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